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| Substitute Form PTO-1449 (Modified) Information Disclosure Statement by Applicant (Use several sheets if necessary) (37 CFR \$1.98(b)) | U.S. Department of Commerce Patent and Trademark Office | Attorney's Docket No. 09945-006001 | Application No. 09/921,181 |
| | Applicant Mark Chiapetta | | |
| | Filing Date August 2, 2001 | Group Art Unit 3662 | |

U.S. Patent Documents

| Examiner Initial | Desig. ID | Patent Number | Issue Date | Patentee | Class | Subclass | Filing Date If Appropriate |
|------------------|-----------|---------------|------------|----------|-------|----------|----------------------------|
| | AA | | | | | | |
| | AB | | | | | | |
| | AC | | | | | | |
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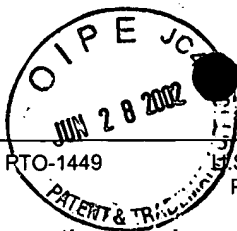
Foreign Patent Documents or Published Foreign Patent Applications

| Examiner Initial | Desig. ID | Document Number | Publication Date | Country or Patent Office | Class | Subclass | Translation | |
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| | | | | | | | Yes | No |
| | AJ | | | | | | | |
| | AK | | | | | | | |
| | AL | | | | | | | |
| | AM | | | | | | | |

Other Documents (include Author, Title, Date, and Place of Publication)

| Examiner Initial | Desig. ID | Document |
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| <i>W</i> | AN | Borenstein and Koren, "Noise Rejection for Ultrasonic Sensors in Mobile Robot Applications", Proceeding of the 1992 IEEE International Conference on Robotics and Automation, Nice, France, 1727-1732, 1992. |
| <i>W</i> | AO | Kuc and Siegel, "Efficient Representation of Reflecting Structures for a Sonar Navigation Model", IEEE, pp. 1916-1923, 1987. |
| <i>W</i> | AP | Kuc and Viard, "Guiding Vehicles with Sonar: The Edge Problem", IEEE 1988 Ultrasonics Symposium, Chicago, Illinois, pp. 1-4. |
| <i>W</i> | AQ | Parnis and Drazan, "Recognition of unreliable ultrasonic range data in a robotic environment", 7 pages, 1988. |
| <i>W</i> | AR | Sabatini, AM, "Active Hearing for External Imaging Based on an Ultrasonic Transducer Array", Proceedings of the 1992 IEEE/RSJ International Conference on Intelligent Robots and Systems, Raleigh, NC, July 7-10, 1992, pp. 829-836. |

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| Examiner Signature <i>Phil</i> | Date Considered 11-12-2002 |
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| U.S. Patent Documents | | | | | | | |
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| Examiner Initial | Desig. ID | Patent Number | Issue Date | Patentee | Class | Subclass | Filing Date If Appropriate |
| <i>W</i> | AA | US 4,620,285 | 10/28/86 | Perdue | — | — | |
| <i>W</i> | AB | US 4,679,152 | 07/07/87 | Perdue | — | — | |
| <i>W</i> | AC | US 5,438,247 | 08/01/95 | Kim <i>et al.</i> | — | — | |
| <i>W</i> | AD | US 5,277,064 | 01/11/94 | Leszczynski | — | — | |

| Foreign Patent Documents or Published Foreign Patent Applications | | | | | | | | |
|---|-----------|-----------------|------------------|--------------------------|-------|----------|-------------|----|
| Examiner Initial | Desig. ID | Document Number | Publication Date | Country or Patent Office | Class | Subclass | Translation | |
| | | | | | | | Yes | No |
| <i>W</i> | AE | GB 2230608 | 10/24/90 | United Kingdom | — | — | | |

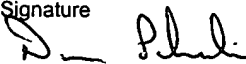
| Other Documents (include Author, Title, Date, and Place of Publication) | | |
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| | Applicant Mark Chiapetta | | |
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| 26 | AQ | Kuc "Three-dimensional tracking using qualitative bionic sonar" Robotics and Autonomous Systems Elsevier Science 11:213-219, 1993. |
| 26 | AR | Kuc et al., "Docking Mobile Robots Using a Bat-like Sonar" <i>Proceedings of the 1992 IEEE/RSJ International Conference on Intelligent Robots and Systems, Raleigh, NC, 1439-1444, 1992.</i> |
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| 26 | BB | McKerrow "Simulation of Sonar Echolocation" <i>Dept. of Computing Science, University of Wollongong, Australia, 10 pages.</i> |
| 26 | BC | Morcuo et al., "Mobile Robot Multitarget Tracking in Dynamic Environments" <i>Proceedings of the 1992 IEEE/RSJ International Conference on Intelligent Robots and Systems, Raleigh, NC, 1464-1469, 1992.</i> |
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|------------------|-----------|---|
| <i>W</i> | BF | Pomeroy <i>et al.</i> , "Ultrasonic Distance Measuring and Imaging Systems for Industrial Robots", <i>Robot Sensors</i> 2:261-270, 1986. |
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| <i>W</i> | BH | Rafiq <i>et al.</i> , "The performance of capacitive ultrasonic transducers using v-grooved backplates" <i>Meas. Sci. Technol.</i> 2:168-174, 1991. |
| <i>W</i> | BI | Sabatini "Active hearing for External Imaging Based on an Ultrasonic Transducer Array" Proceeding of the 1992 IEEE/RSJ International Conference on Intelligent Robots and Systems, Raleigh, NC, 829-836, 1992. |
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| <i>W</i> | BK | Sun <i>et al.</i> , "Computer simulation of sensor-based robot collision avoidance in an unknown environment" <i>Proceedings of the 1992 IEEE/RSJ International Conference on Intelligent Robots and System, Raleigh, NC</i> , 291-302, 1986. |
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| <i>W</i> | BM | Walter "The Sonar Ring: Obstacle Detection for a Mobile Robot" <i>IEEE</i> 1574-1579, 1987. |
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| <i>W</i> | BP | "4. The Tympanic-nerve Response in Noctuid Moths" <i>Tympanic Response in Moths</i> , 34-99. |

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| Examiner Signature <i>Philip</i> | Date Considered 11-12-2002 |
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| Examiner Initial | Desig. ID | Patent Number | Issue Date | Patentee | Class | Subclass | Filing Date If Appropriate |
|------------------|-----------|---------------|------------|--------------|-------|----------|----------------------------|
| LD | AA | US 5,717,169 | 02/10/98 | Liang et al. | — | — | |
| LD | AB | US 3,929,006 | 12/30/75 | Boggs et al. | — | — | |
| | AC | | | | | | |
| | AD | | | | | | |
| | AE | | | | | | |
| | AF | | | | | | |
| | AG | | | | | | |
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| | AI | | | | | | |
| | AJ | | | | | | |
| | AK | | | | | | |

Foreign Patent Documents or Published Foreign Patent Applications

| Examiner Initial | Desig. ID | Document Number | Publication Date | Country or Patent Office | Class | Subclass | Translation | |
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| | AL | | | | | | | |
| | AM | | | | | | | |
| | AN | | | | | | | |
| | AO | | | | | | | |
| | AP | | | | | | | |

Other Documents (include Author, Title, Date, and Place of Publication)

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|------------------|-----------|----------|
| | AQ | |
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| | AS | |
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